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PATENT APPLICATION

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The Examiner affirmatively stated that the amendment was the basis for the finality of the rejection. However, the rejection included a new enablement rejection not made in the previous action. The rejection concerned a claim limitation that was present in claims 1 and 3 when the application was first examined. Under MPEP 706.07(a), "second or any subsequent actions on the merits shall be final, except where the examiner introduces a new ground of rejection that is neither necessitated by applicant's amendment of the claims nor based on information submitted in an information disclosure statement." No IDS was filed with the previous amendment. Since the disputed limitation was present in claims 1 and 3 for the first examination, the new rejection of claims 1 and 3 was not necessitated by Applicants' amendment. The rejection should not be a final rejection.

A petition to withdrawal finality was filed on 06/20/2005, but no decision has been received by Applicants.

Claim Rejections – 35 U.S.C. § 112

Claims 1-7, 22-31, and 56-58 have been rejected under 35 U.S.C. § 112, first paragraph as allegedly failing to comply with the enablement requirement. The Examiner stated that the specification is enabling for "Ar is an independently selected divalent aromatic radical," but not for "with or without substituents containing one or more fused aromatic rings, one or more non-fused aromatic rings without intervening functional groups, or combinations thereof wherein the radical sites are on the same or different aromatic rings."

"Divalent aromatic radical" is a genus. The Examiner has admitted that the specification is enabling for the genus. Thus, the full genus is enabled including all species within the scope of the genus. The language that follows the genus lists certain sub-genera all within the scope of the genus. Thus, the sub-genera are also enabled by the specification.

Further, the Examiner stated the conclusion that the specification does not enable any person skilled in the art to make and/or use the invention commensurate in scope with these claims. However, no evidence is offered to support this conclusion. The Examiner has the burden of "making specific findings of fact, supported by the evidence, and then drawing conclusions based on these findings." (MPEP 2164.04.) An enablement rejection may not be based solely on stating that the claim is not enabled.

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Claim Rejections – 35 U.S.C. § 102

Claims 1 and 2 have been rejected under 35 U.S.C. § 102(b) as allegedly anticipated by Keller et al. (US 4,259,471).

The Examiner referred to a supposed amendment to claim 1 as raising new issues that would require further consideration and search (p. 2, lines 15-17). However, claim 1 was amended only by preliminary amendment before the first office action. The claim was not amended in Applicants' previous response. It is not clear which version of claim 1 is being examined.

Claim 1 is to a polyaromatic ether comprising the formula $-(O-Ar)_n-$. Ar is an independently selected divalent aromatic radical with or without substituents containing one or more fused aromatic rings, one or more non-fused aromatic rings without intervening functional groups, or combinations thereof wherein the radical sites are on the same or different aromatic rings. n is an integer greater than or equal to 7.

Keller discloses the structure $C_6(CN)_2H_3-(O-\phi)_x-O-C_6(CN)_2H_3$ and states that it may be made by reacting an aromatic diol with 4-nitrophthalonitrile. The aromatic diol would be $HO-(O-\phi)_x-OH$, where x is from 1 to 10.

The reference is not enabling for all values of x. "Where a process for making the compound is not developed until after the date of invention, the mere naming of a compound in a reference, without more, cannot constitute a description of the compound." MPEP 2121.02, citing *In re Hoeksema*, 158 U.S.P.Q 596, 399 F.2d 269 (C.C.P.A 1968). The reference merely states that the aromatic diols are easily made by an Ullman ether synthesis, and cites to Williams, et al. and Hammann et al. for further information (col. 3, line 68-col. 4, line 8). The examples in Keller only disclose the use of compounds having x = 1 and 2, and no syntheses of aromatic diols are disclosed. The longest chain disclosed in Williams is a four-ring product where x = 3 (p. 2504, right-hand col., line 18). The longest chain disclosed in Hammann would have x = 6 (p. 353, compound VI, synthesis on p. 354). The reagents disclosed cannot be combined to produce a longer chain according the process disclosed.

Also attached is the declaration of Teddy M. Keller stating his expert opinion that the Ullmann ether synthesis cannot be used to make oligomeric or polymeric aryl ethers in high yield and high molecular weight.

The Examiner stated that the declaration is not commensurate with the scope of the

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claims. It was not stated what part of the claim was not covered by the declaration. The declaration states that "the Ullmann ether synthesis referred to in the Keller reference (US Patent No. 4,259,471) cannot be used to make oligomeric or polymeric aryl ethers in high yield and high molecular weight." (Paragraph 3.) Thus, the scope of the declaration covers all polymeric aryl ethers, which is another term for polyaromatic ethers. Claim 1 recites polyaromatic ethers. Thus the declaration is commensurate with the scope of the claims.

Claim 2 is to the compound of claim 1 where all the Ar groups are m- or p-phenylene and is also asserted to not be enabled by the reference. It should be noted that in Hammann, the longest chain having only phenylene groups has $x = 3$ (p. 353, compound VII). All longer structures contain a biphenyl group in one of the repeat units.

Claims 3 and 4 have been rejected under 35 U.S.C § 102(b) as allegedly anticipated by Matzner et al. (US 5,084,530 or US 4,968,758).

The Examiner stated that in claim 3, the deletion of "n is an integer equal to 1" raises new issues. However, since the amendment was made in response to the first office action, which was a non-final rejection, Applicants were entitled to make amendments that raise new issues. "The Applicant may amend: (A) before or after the first examination and action and also after the second or subsequent examination or reconsideration as specified in 37 CFR 1.112." (MPEP 714, heading I.) The Examiner's objection appears to be based on 37 CFR 1.112, which does not apply to Applicants' amendment, as it was in response to a first office action. Further, there is no indication that entry of the amendment was denied. Thus, the amended limitation is present in the currently pending claims. If the Examiner ignored this limitation, then the Examiner has examined claims that are not pending in the application.

Claim 3 is to an aromatic ether oligomer comprising the formula $T-Ar-(O-Ar)_n-T$. Ar is as defined above. Each T is either -OH, -Br, or -I. n is an integer greater than 1.

Matzner discloses the structure $HO-C_6H_4-O-C_6H_4-OH$ (col. 8, line 25). This would be equivalent to the claimed structure if n were equal to 1.

In order to make a *prima facie* case of anticipation, the reference must disclose each limitation of the claim. The reference does not disclose the limitation in claim 3 that n is greater than 1. Claim 3 does not allow for n to be 1.

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Claim 4 depends from and contains all the limitations of claim 3 and is asserted to distinguish from the reference in the same manner as claim 3.

Claim Rejections – 35 U.S.C. § 103

Claims 4-7, 22-31, and 56-58 have been rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over Matzner et al. (US 5,084,530 or US 4,968,758).

The Examiner stated that the claims depend on claim 3 which is subjected to a new matter situation. However, only claims 4-7 depend on claim 3. The Examiner had also stated that the amendment to claims 22, 24, and 26 raised new issues. The new matter issue is discussed above.

Claim 4, dependent on claim 3, is to an aromatic ether oligomer comprising the formula $T-Ar-(O-Ar)_n-T$. Ar is as defined above. Each T is either $-OH$, $-Br$, or $-I$. n is an integer greater than 1 and no more than 100.

Matzner discloses the structure $HO-ArR'_d-R_1-ArR''_d-OH$ (col. 8, line 25). R_1 may be $-O-$ and d may be 0. This would be equivalent to the claimed structure if n were equal to 1.

In order to make a *prima facie* case of obviousness, each claim limitation must be disclosed in the reference. As explained above, the reference does not disclose the limitation in claim 3 that n is greater than 1. Note that the claimed structure does not allow for any group between the aromatic groups other than $-O-$. As all the claim limitations of claim 4 are not disclosed in the reference, a *prima facie* case of obviousness has not been made.

Claims 5-7 depend from and contains all the limitations of claim 3 and are asserted to distinguish from the reference in the same manner as claim 3.

Further, as to claims 5 and 6, the claimed values for n are not disclosed in the reference.

As to claim 6, the reference does not disclose that both terminating groups are $-OH$ when n is greater than 1.

Claim 22 is to a method of making the polyaromatic ether recited in claim 1 comprising reacting a dihydroxyaromatic with a dihaloaromatic in the presence of a copper compound and a base. Neither the dihydroxyaromatic nor the dihaloaromatic is present in an excess amount.

Matzner discloses reacting a dihydroxyaromatic with a dihaloaromatic (col. 19-20, equation VII). However, the reactants disclosed containing intervening groups such as isopropylene and sulphone. This results in a product having groups other than $-O-$ between the

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aromatic groups. Such products are now excluded from the claim. The difference is significant in that Matzner uses activating groups such as sulphone to make the reaction occur more easily. In the present claim 22, such groups are absent. As all the claim limitations of claim 22 are not disclosed in the reference, a *prima facie* case of obviousness has not been made.

Claims 23 and 56 depend from and contain all the limitations of claim 22 and are asserted to distinguish from the reference in the same manner as claim 22. Further, as to claim 23, this claim recites that the copper compound is CuI or CuBr. These copper compounds are not disclosed in the reference.

Claim 24 is to a method of making the polyaromatic ether recited in claim 1 comprising reacting a halohydroxyaromatic in the presence of a copper compound and a base. This is similar to claim 22, but requiring only one aromatic monomer having both the hydroxy and the halo group.

As explained above, Matzner discloses only products having groups other than —O— between the aromatic groups. As all the claim limitations of claim 24 are not disclosed in the reference, a *prima facie* case of obviousness has not been made.

Claims 25 and 57 depend from and contain all the limitations of claim 24 and are asserted to distinguish from the reference in the same manner as claim 24. Further, as to claim 25, the arguments regarding claim 23 apply to this claim.

Claim 26 is to a method of making the aromatic ether oligomer of claim 3, where n is greater than or equal to 1.

As explained above, Matzner discloses only products having groups other than —O— between the aromatic groups. As all the claim limitations of claim 26 are not disclosed in the reference, a *prima facie* case of obviousness has not been made.

Claims 27-31 and 59 depend from and contain all the limitations of claim 26 and are asserted to distinguish from the reference in the same manner as claim 26. Further, as to claim 27, the arguments regarding claim 23 apply to this claim.

As to claim 29, Matzner does not disclose the specific reactants or the products.

As to claim 31, Matzner does not disclose the additional step of reacting a haloterminated oligomer with a dihydroxyaromatic.

The Examiner stated that Applicants' arguments were based on the presence of a copper compound, but that this was not persuasive since the products of the references had been formed

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in the absence of a copper compound. However, the copper compound was argued only in reference to claims 23, 25, and 27. Further, the Examiner is citing the disclosure of a product in the reference as anticipating a method in the present claims. The Examiner also admitted that the references do not disclose a copper compound (p.3, lines 12-13). The references do not disclose the method limitation.

In view of the foregoing, it is submitted that the application is now in condition for allowance.

In the event that a fee is required, please charge the fee to Deposit Account No. 50-0281, and in the event that there is a credit due, please credit Deposit Account No. 50-0281.

Respectfully submitted,



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